IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

IN RE APPLICATION		MAIL STOP:	APPEAL BRIEF
OF:	WALSDORFF ET AL.	CONFIRMATION NO.:	5427
SERIAL NO.	09/847,298	GROUP ART UNIT:	1754
FILED:	MAY 03, 2001	EXAMINER:	E. M. JOHNSON

FOR: CATALYST FOR HETEROGENEOUSLY CATALYZED REACTIONS

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Honorable Commissioner
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P.O. Box 1450
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BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

Sir:

This is an appeal from the Examiner's final rejection of Claims 2, 3, 5, 6 and 12, dated May 05, 2004. Claims 2, 3, 5, 6 and 12 are currently pending.

REAL PARTY IN INTEREST:

The real party in interest is BASF Aktiengesellschaft, 67056 Ludwigshafen, Germany.

RELATED APPEALS AND INTERFERENCES:

To the best of the undersigned's knowledge, there are no related appeals or interferences within the meaning of 37 C.F.R. §1.192(c)(2).

STATUS OF THE CLAIMS:

The claims on appeal before the Board of Patent Appeals and Interferences are Claims 2, 3, 5, 6 and 12. A copy of these claims is found in the attached Appendix I.

STATUS OF THE AMENDMENTS:

Claim 12 was amended and Claims 7 to 11 were canceled in applicants' reply dated July 04, 2004. In light of the Examiner's indication that the amendment would not be entered (*advisory action dated September 22, 2004*) applicants have submitted a supplemental reply of even date with this Brief to cancel Claims 7 to 11 which were withdrawn from consideration by the Examiner. The claims accordingly stand as presented in applicants supplemental reply.

No further amendments were filed in this application after final rejection.

SUMMARY OF THE INVENTION:

Appellants' invention relates to an oxychlorination catalyst for use as a fluidized-bed catalyst which is in powder form and comprises at least one active component with a catalyst support comprising δ-Al_2O_3 in an amount detectable by X-ray diffractometry[1]. Appellants' invention further relates to a process for the preparation of the oxychlorination catalyst which comprises impregnating pulverulend δ-Al_2O_3-containing support with salts of copper, alkali metals and, optionally, alkaline earth metals, rare-earth metals or mixtures thereof, separately from one another or together, optionally with the addition of acids or oxidants[2].

ISSUE(S) PRESENTED:

I. Whether the Examiner erred finding that the subject matter of appellants' Claims 2, 3, 5, 6 and 12 was unpatentable under 35 U.S.C. §102(b) for being anticipated by the teaching of ***Convers et al.*** **(US 4,460,699)**.

II. Whether the Examiner erred finding that the subject matter of appellants' Claims 2, 3, 5, 6 and 12 was unpatentable under 35

1) Cf. independent Claims 12 and dependent Claims 2 and 3.

2) Cf. Claims 5 and 6.

U.S.C. §102(b) for being anticipated by the teaching of ***Courty et al.*** **(US 4,381,415).**

GROUPING OF THE CLAIMS:

For the issue(s) above, Claims 2, 3, 5 and 6 stand and fall with Claim 12.

ARGUMENTS

I. The Examiner erred finding that the subject matter of appellants' Claims 2, 3, 5, 6 and 12 was anticipated by the teaching of ***Convers et al.***

Anticipation under Section 102 can be found only if a reference shows exactly what is claimed[3], and the test for anticipation is one of identity which means that the identical invention must be shown in the reference in as complete detail as is contained in the claim[4].

The teaching of ***Convers et al.*** relates to fixed bed catalysts for oxychlorination which are particulate, for example in form of spheres, tablets, extrudates and rings, or monolithic, for example in form of honeycombs[5], and which comprise[6]

(a) an impeded center,

(b) a layer of catalyst carrier material having a thickness of about 0.001 mm to 1 mm which is disposed on (a), and

(c) a catalytic agent which is disposed on or dispersed in the layer (b).

According to ***Convers et al.***, the impeded center together with the covering layer should be approximately equal to the size desired for the finished fixed bed catalyst[7], and the size of particulate fixed bed catalysts is indicated as being in most cases from about $^1/_8$" to $^3/_8$", corresponding to about 3 to 9 mm, in average[8]. ***Convers et al.***

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3) Cf. Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (CAFC 1985); In re Marshall 577 F.2d 301, 198 USPQ 344 (CCPA 1978); In re Kalm 378 F.2d 959, 154 USPQ 10 (CCPA 1967).

4) Cf. Richardson v. Suzuki Motor Co., 868 F.2d 1226, 9 USPQ2d 1913 (CAFC 1989).

5) Cf. col. 3, indicated lines 41 to 44, of ***US 4,460,699.***

6) Cf. col. 2, indicated lines 17 to 25, of ***US 4,460,699.***

7) Cf. col. 3, indicated lines 64 to 67, of ***US 4,460,699.***

8) Cf. col. 3, indicated lines 58 to 62, of ***US 4,460,699.***

further provide that the impeded center (a) of the particulate fixed bed catalyst should have an average diameter in the range of about 1 mm to about 10 mm[9]. In the illustrative examples, ***Convers et al.*** employ as impeded center (a) α-alumina spheres having a diameter of $^1/_4$" corresponding to about 6 mm[10] for preparing particulate catalysts.

With regard to the carrier material (b) ***Convers et al.*** refer to any carrier material which is suitable for a fixed bed catalyzed oxychlorination process and mention as representative examples gamma, eta and delta alumina, silica aluminas, titania silica, niobia, clay, magnesia alumina (spinel) and combinations thereof[11].

Convers et al. describe that the catalysts are prepared by coating the impeded centers with the layer of the catalyst carrier material[12] and by subsequently applying the catalytic agent to the carrier by any method which is not destructive to the impeded center and the surrounding carrier[13]. The described method is illustrated in Examples 2 to 4, where α-alumina spheres (a) are coated with a layer of γ-alumina (b) and the coated spheres are subsequently impregnated with the catalytic agent(s)[14]. As an alternative, ***Convers et al.*** mention that the carrier material may be sprayed with a solution of the catalytic agents, dried and optionally calcined before applying it to the impeded center[15].

Appellants' catalyst is in powder form for use in a fluidized-bed process and comprises a support comprising δ-alumina in an amount detectable by X-ray diffractometry. Appellants' catalyst is not identically disclosed by the teaching of ***Convers et al.*** because the catalysts addressed by ***Convers et al.*** are particulate or monolithic and adapted for use in a fixed-bed process. Additionally, the teaching of ***Convers et al.*** fails to identically show a catalyst powder comprising a support and at least one active component wherein the support com-

9) Cf. col. 3, indicated line 67, to col. 4, indicated line 1, of ***US 4,460,699***.

10) Cf. col. 7, indicated lines 58 to 61, col. 8, indicated lines 19 to 22 and indicated lines 50 to 53, and col. 9, indicated lines 50 to 56, of ***US 4,460,699***.

11) Cf. col. 4, indicated lines 51 to 61, of ***US 4,460,699***.

12) Cf. col. 5, indicated lines 51 to 66, of ***US 4,460,699***.

13) Cf. col. 5, indicated line 67, to col. 6, indicated line 4, of ***US 4,460,699***.

14) Cf. cols. 7 and 8, of ***US 4,460,699***. In Example 5, col. 9 of ***US 4,460,699***, the impeded center without a carrier layer is impregnated with the catalytic agent(s). The resulting catalyst is described as inactive.

15) Cf. col. 6, indicated lines 4 to 9, of ***US 4,460,699***.

prises δ-alumina in the requisite amounts. The teaching of ***Convers et al.*** also fails to identically describe a process in which a pulverulent δ-Al_2O_3-containing support is impregnated with salts of copper, alkali metals and, optionally, alkaline earth metals, rare-earth metals or mixtures thereof, separately from one another or together, optionally with the addition of acids or oxidants.

The Examiner pointed out that ***Convers et al.*** mention gamma, eta and delta alumina as carrier materials and argued that the presence of a detectable amount of δ-alumina was, therefore, inherent. However, the aluminas enumerated by the Examiner in this context are merely three of a number of materials which are mentioned by ***Convers et al.*** as suitable carriers each of which can be employed alone or in combination with other carriers. The presence of detectable amounts of δ-alumina is, therefore, not necessarily inherent in the catalysts addressed by ***Convers et al.*** Moreover, it is well settled that generic disclosure is not sufficient to anticipate each species or subgenus which happens to fall within the generic range of the disclosure[16]. The fact that ***Convers et al.*** *inter alia* mention δ-alumina as a suitable carrier material is, therefore, not deemed sufficient to identically describe a catalyst in powder form as defined in appellants' Claim 12.

The Examiner pointed out that the catalysts of Examples 3 and 4 of ***Convers et al.*** contained 17.1 and 22.6% by weight of alumina as carrier material. However, the alumina references in those examples of ***Convers et al.*** is γ-alumina[17] rather than δ-alumina as referenced in appellants claims. Moreover, the examples of ***Convers et al.*** describe particulate catalysts having a diameter of at least 6 mm rather than a catalyst in powder form.

The Examiner took the position that appellants' claims merely recited an intended use without, however, providing for a feature or features which distinguish appellants' catalyst from the catalysts of ***Convers et al.*** However, as clearly set forth in Claim 12, appellants' catalyst is "*in powder form for use as a fluidized-bed catalyst*"

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16) Note in particular Corning Glass Works v. Sumitomo Electric U.S.A., 868 F.2d 1251, 9 USPQ2d 1962 (CAFC 1989), and Minesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 24 USPQ2d 1321 (CAFC 1992), which emphasize that a genus does not inherently disclose all species; and also In re Jones, 958 F.3d 347, 21 USPQ2d 1614 (CAFC 1992), and In re Baird, 16 F.3d 380, 29 USPQ2d 1550 (CAFC 1994), which point out that a genus does not even render all species that happen to fall within the genus prima facie obvious.

17) Cf. col. 8, indicated lines 40 to 42 and indicated lines 66 to 68, of ***US 4,460,699***.

(*emphasis added*). Accordingly, appellants' claims recite a specific feature which distinguishes appellants' catalyst from the catalysts taught by ***Convers et al.***[18]).

The Examiner remarked that a claim is anticipated where a prior art structure is capable of performing the intended use. The respective statement is, however, only applicable in situations where the intended use is the only distinguishing feature. Appellants' catalyst is distinguished over the particulate catalysts taught by ***Convers et al.*** due to appellants' requirement that the catalyst be in powder form, and the Examiner's remark does not apply to the circumstances of the current claims.

The Examiner argued that appellants' catalyst powder was anticipated by the catalyst particles of ***Convers et al.*** because the *"particulate surface area"* disclosed by ***Convers et al.*** is the same as the surface area of appellants' catalyst. The Examiner's respective position is not deemed to be well taken. The surface areas referenced by the Examiner are specific surface areas rather than geometric surface areas. In contrast to a geometric or "external" surface area of a particle the specific surface area includes internal surfaces such as the surfaces of the pores and the crevices which are present in the particle. The specific surface area is, therefore, not indicative of the particle size per se. For example, a sponge or monolith having a diameter of several centimeters or even several meters can have the same specific surface area as a powder.

II. The Examiner erred finding that the subject matter of appellants' Claims 2, 3, 5, 6 and 12 was anticipated by the teaching of ***Courty et al.***

The teaching of ***Courty et al.*** relates to fixed bed catalysts for dealkylating aromatic hydrocarbons in the presence of steam which comprise

(a) a porous carrier consisting essentially of alumina[19]), and

(b) - rhodium,
- at least one metal selected from the group of copper, silver and gold as an activator,

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18) All words in a claim must be considered in judging the patentability of a claim against the prior art (In re Wilson, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970)).

19) Cf. col. 2, indicated lines 55 and 56, in conjunction with col. 1, indicated lines 14 to 18, of *US 4,381,415*.

- rhenium as a selectivity improver, and
- at least one additional metal selected from the group of lithium, sodium, potassium, rubidium, cesium, beryllium, magnesium, calcium, strontium, barium and uranium[20],

where the porous alumina carrier is preferably of the type: eta-cubic η, gamma-cubic γ_C, gamma-tetragonal γ_T, Chi χ-cubic, Kappa-orthorhombic κ, theta-monoclinic Θ, delta-orthorhombic δ or rho-amorphous ρ[21]. In the illustrative examples, ***Courty et al.*** employ as the carrier γ_C-alumina spheres having a diameter of from 1.6 to 2.5 mm[22], and γ_C- and γ_T-alumina extrudates having a diameter of 1.2 mm and a length from 4 to 7 mm[23].

Appellants' catalyst is in powder form for use in a fluidized-bed process and comprises a support comprising δ-alumina in an amount detectable by X-ray diffractometry.

Appellants' catalyst powder which comprises a support comprising δ-alumina in an amount detectable by X-ray diffractometry is not identically described by the teaching of ***Courty et al.*** because the catalysts addressed by ***Courty et al.*** are particulate and adapted for use in a fixed-bed process. Additionally, the teaching of ***Courty et al.*** fails to identically show a catalyst powder comprising a support and at least one active component wherein the support comprises δ-alumina in the requisite amounts. The teaching of ***Courty et al.*** also fails to identically describe a process in which a pulverulent δ-Al_2O_3-containing support is impregnated with salts of copper, alkali metals and, optionally, alkaline earth metals, rare-earth metals or mixtures thereof, separately from one another or together, optionally with the addition of acids or oxidants.

The Examiner pointed out that ***Courty et al.*** mention delta alumina as carrier materials and argued that the presence of a detectable amount of δ-alumina was, therefore, inherent. However, the delta alumina is merely one of a number of alumina materials which are mentioned by ***Courty et al.*** as suitable alumina carriers. The presence of detectable amounts of δ-alumina is, therefore, not necessarily inher-

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20) Cf. col. 2, indicated lines 57 to 68, of ***US 4,381,415***.

21) Cf. col. 3, indicated lines 55 to 60, of ***US 4,381,415***.

22) Cf. col. 4, indicated lines 26 to 31, and col. 6, indicated lines 42 to 45, of ***US 4,381,415***.

23) Cf. col. 5, indicated lines 17 to 10, of ***US 4,381,415***.

ent in the catalyst carriers enumerated by ***Courty et al.*** As pointed out by appellants in the foregoing, it is well settled that generic disclosure is not sufficient to anticipate each species or subgenus which happens to fall within the generic range of the disclosure[24]. The fact that ***Courty et al.*** *inter alia* mention δ-alumina as a suitable alumina carrier is, therefore, not deemed sufficient to identically describe the catalyst in powder form as defined in appellants' Claim 12.

The Examiner took the position that appellants' claims merely recited an intended use without, however, providing for a feature or features which distinguish appellants' catalyst from the catalysts of ***Courty et al.*** However, as clearly set forth in Claim 12, appellants' catalyst is *"in powder form for use as a fluidized-bed catalyst"* (*emphasis added*). Accordingly, appellants' claims recite a specific feature which distinguishes appellants' catalyst from the particulate catalysts taught by ***Courty et al.***[25].

The Examiner remarked that a claim is anticipated where a prior art structure is capable of performing the intended use. The respective statement is, however, only applicable in situations where the intended use is the only distinguishing feature. Appellants' catalyst is distinguished over the particulate catalysts taught by ***Courty et al.*** due to appellants' requirement that the catalyst be in powder form, and the Examiner's remark does not apply to the circumstances of the current claims.

The Examiner argued that appellants' catalyst powder was anticipated by the catalyst particles of ***Courty et al.*** because the *"particulate surface area"* disclosed by ***Courty et al.*** is the same as the surface area of appellants' catalyst. As pointed out by appellants in the foregoing, the Examiner's respective position is not deemed to be well taken because the referenced surface areas are specific surface areas rather than geometric surface areas. The specific surface area includes the internal surfaces, such as the surfaces of pores and crevices, and the specific surface area of a carrier material or of a catalyst, therefore, provides no indication whether the carrier or catalyst is in form of a powder, a particle or a monolith.

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24) Cf. ftn. (16), page 5 of this paper.

25) Cf. ftn. (18), page 6 of this paper.

CONCLUSION

In light of the foregoing explanations and remarks, appellants respectfully urge that the Examiner erred finding that the subject matter of appellants' Claims 2, 3, 5, 6 and 12 was anticipated under 35 U.S.C. §102(b) by the teaching of ***Convers et al.*** or the teaching of ***Courty et al.*** It is therefore respectfully requested that the Examiner's rejection of Claims 2, 3, 5, 6 and 12 as being anticipated under Section 102(b) by the teaching of ***Convers et al.*** or the teaching of ***Courty*** *et al.* be reversed. Favorable action is respectfully solicited.

REQUEST FOR EXTENSION OF TIME:

A petition for a *one* month extension of time is included in applicants' supplemental reply of even date with this paper. An authorization to charge the *$110.00* fee for the extension of time to Deposit Account No. 11.0345 is included in the enclosed cover letter.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 11.0345. Please credit any excess fees to such deposit account.

Respectfully submitted,
KEIL & WEINKAUF

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Encl.: THE CLAIMS ON APPEAL (Appendix I)

HBK/BAS

APPENDIX I:

THE CLAIMS ON APPEAL:

2. A catalyst as in claim 12, wherein the catalyst support comprises from 10 to 100% by weight of δ-Al_2O_3.

3. A catalyst as in claim 12, wherein the active components employed are from 1 to 15% by weight of copper, from 0.1 to 6% by weight of alkali metals, and from 0 to 5% by weight of alkaline earth metals, rare-earth metals or mixtures thereof.

5. A process for the preparation of the catalyst of claim 12, which comprises impregnating pulverulent δ-Al_2O_3-containing support with salts of copper, alkali metals and, optionally, alkaline earth metals, rare-earth metals or mixtures thereof, separately from one another or together, optionally with the addition of acids or oxidants.

6. The process of claim 5, wherein the salts employed are chlorides.

12. An oxychlorination catalyst in powder form for use as a fluidized-bed catalyst which comprises at least one active component with a catalyst support comprising δ-Al_2O_3 in an amount detectable by X-ray diffractometry.

APPENDIX II:

EVIDENCE APPENDIX:

The attached material is a copy of ***Le Page et al.***, *"applied heterogeneous catalysis"*, Institut français du pétrole publications 1987, Éditions Technip, Paris, pages 200-202. The attached material was presented with appellants' response dated September 06, 2004, to the Examiner's advisory action dated July 28, 2004.

The material was not presented earlier in the proceedings because only the Examiner's remarks in the advisory action suggested that the Examiner considered the specific surface are of a catalyst to be in relation to the particle size of the catalyst.

The Examiner has not indicated whether the material was entered and considered by him.